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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 June 2008</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-27</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-27</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>30 December 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☒ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>See Continuation Sheet</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :December 30 2005; January 14 2009.

DETAILED ACTION

Priority

1.   Acknowledgment is made of applicant's claim for foreign priority based on

applications filed in Japan on July 7, 2003, July 31, 2003, and September 26, 2003. It is

noted, however, that applicant has not filed certified copies of the 2003-271474, 2003-

283871, and 2003-334662 application as required by 35 U.S.C. 119(b).

Specification

2.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

The following title is suggested: TRANSMISSION CAPACITY ALLOCATION

METHOD, COMMUNICATIONS NETWORK, AND NETWORK RESOURCE

MANAGEMENT DEVICE.

Claim Objections

3.   Claims 1,7,14,16,21,24,25,27 are objected to because of the following

informalities:

Re claim 1, Applicant recites in part on line 25 of the claim, "upon receipt of the

receive nowledgement from the call requested terminal…". Examiner suggests

correcting to "upon receipt of the receive **acknowledgement** from the call requested

terminal…"

Re claim 7, Applicant recites in part on line 4, "the physical network", which lacks antecedent basis.

Re claim 14, Applicant recites in part on line 5, "between the call request terminal and the call requested terminal amongst the plurality of terminals", where "the call request terminal" and "the call requested terminal" lack antecedent basis.

Re claim 16, Applicant recites in part on line 1, "wherein one or more switching hubs are connected to the tree structure," where "the tree structure" lacks antecedent basis.

Re claim 21, Applicant recites on line 1, "wherein the three bits of TCI that represent priority" which lacks antecedent basis. Also, Examiner suggests spelling out what "TCI" is to further clarify the claim.

Re claim 24, Applicant recites on line 2, "comprising means for configuring the threshold value" and "of the input frame rate of ports", where these limitations lack antecedent basis.

Re claim 25, Applicant recites on line 1, "wherein, amongst the switching hubs, hubs at the edge of the network comprise means which, upon receipt of a notification of source MAC addresses and destination MAC addresses for which the maximum transmission capacity is guaranteed from the network resource management means, activates the priority processing markings of frames with these MAC addresses, and, upon receipt of a notification of MAC addresses without guaranteed maximum transmission capacity from the network resource management means, removes the priority processing markings of the frames with these MAC addresses." First, to correct

antecedence, "hubs at the edge of the network", "the maximum transmission capacity"

and "the priority processing markings" should be corrected. Further, "activates" should

be corrected to "activate" and "removes" should be corrected to "remove".

Re claim 27, Applicant recites on line 2, "VLAN identifiers represented by TCI,

wherein:". Examiner suggests spelling out what "TCI" is to further clarify the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

4.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

5.   Claims 1-13 are rejected under 35 U.S.C. 101 because the claimed recitation of

a use, without setting forth any steps involved in the process, results in an improper

definition of a process, i.e., results in a claim which is not a proper process claim under

35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and

Clinical Products, Ltd. v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

7.   Claims 1-13,14-25, and 26-27 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention.

Re claim 1, Applicant recites a transmission capacity allocation method "for

configuring a path with guaranteed transmission capacity...and configuring a single path

between learned terminals, wherein:" followed by functional language describing

functions of specific structures in a system, which language substantially follows the

format of means plus function limitations. Thus, the method claim merely provides for

the use of the transmission capacity allocation method, but, since the claim does not set

forth any steps involved in the method/process, it is unclear what method/process

applicant is intending to encompass. A claim is indefinite where it merely recites a use

without any active, positive steps delimiting how this use is actually practiced. Further,

by using the transition word "wherein", it is unclear if the scope of the claim is open-

ended or close-ended. It is suggested that to overcome the 35 USC 112 rejection, the

use of proper method transitional terms is used, i.e. "comprising" or "consisting" "(the

steps) of". Also, to make the claims definite, the method steps should be clearly recited,

for example, "managing connections", "transmitting a call request", and "making an

assessment". The dependent claims 2-13 do not remedy the deficiencies of Claim 1

and are thus rejected as well.

Re claim 1 (and similarly Claims 14 and 26), Applicant recites the limitation

starting on line 32 of claim 1 (line 34 of Claim 14 & line 26 of Claim 26), "upon receipt of

the clear request, the network resource management means releases capacity in case

transmission capacity corresponding to the clear request has been assured." It is unclear whether the use of "in case" is intended for use as a hypothetical precursor, as in "She closed the window in case it rained", or used to mean as a result, as in "She ordered a salad in the case of she was a vegetarian".

Re claims 6 and 27, Applicant recites on line 2 of claim 6 (and similarly on line 1 of claim 27), "means manages the usage status of VLAN identifiers represented by TCI". It is unclear as to whether TCI represents the means for managing, the usage status, or the VLAN identifiers.

Re claim 7, Applicant recites the limitation starting on line 1, "wherein transmission capacity is allocated in advance even to currently unused communication paths that may be switched to in the future based on the spanning tree protocol,". It is unclear as to the relationship between "the spanning tree protocol" and what is based on it. For example, it is unclear if the allocation is based on the spanning tree protocol, or the paths are based on the spanning tree protocol.

Re claim 12, Applicant recites the limitation starting on line 3 of the claim, "as well as notification of the network resource management means by the switching hubs". It is unclear as to what constitutes the notification the switching hubs are performing and how it relates to the network resource management means.

Re claim 16, Applicant recites on line 1, "wherein one or more switching hubs are connected to the tree structure, with the network resource management means located in the vicinity of the root (root) of the tree structure." The term "vicinity" in claim 16 is a relative term which renders the claim indefinite. The term "vicinity" is not defined by the

claim, the specification does not provide a standard for ascertaining the requisite

degree, and one of ordinary skill in the art would not be reasonably apprised of the

scope of the invention. Further, it is unclear as to what the root in parentheses is in line

3, "root (root) of the tree structure".

Re claim 17, Applicant recites in part on line 6, "the terminals compliant with

frames having guaranteed maximum transmission capacity can have means for

appending". Since 'can' renders the limitation as a potentially optional requirement in

the network, it is unclear if the Applicant is claiming the terminals having the means for

appending or not. See also MPEP 2106.II.C and MPEP 2111.04.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

9.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

10.   Claims 1,5,9,11,14,15,26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ely et al (7,606,909) in view of Gonda (2003/0067928).

        Re claim 1, Ely et al discloses a transmission capacity allocation method for

configuring a path with guaranteed transmission capacity (transmission bandwidth

required based on codec [col. 11, lines 55-67]) between a call request terminal (for

example, customer 150 [col. 3, lines 10-19]) and a call requested terminal (for example,

agent [col. 4, lines 10-20]) via one or more switching hubs (for example, media handler

routes media [col. 3, lines 32-40]), wherein:

    network resource management means (conference controller [col. 6, lines 42-60])

managing connections between the terminals and the switching hubs, as well as

between the switching hubs, and transmission capacity of transmission links associated

with the connections, is provided on a network (bandwidth manager manages

bandwidth for all connections in all parts of the network [col. 8, lines 5-17]);

    the call request terminal transmits a call request containing information on the

transmission capacity (device capability info, including video, audio, and data codec

support [col. 5, lines 64-67]) whose allocation is requested in order to perform

communication, along with its own terminal address and the address of the call

requested terminal (information includes IP address information [col. 4, lines 53-60] &

type of media service, media endpoints, and media sources [col. 7, lines 30-36]);

the network resource management means, in response to the call request from the call request terminal (call is initiated by a customer [col. 4, lines 50-60]), makes an assessment as to whether transmission capacity to be used can be assured along the path traversing switching hubs between the call request terminal and the call requested terminal (col. 11, lines 40-67]) and transmits the call request to the call requested terminal if it can be assured (inherently the call request would reach the call requested terminal (See Figure 4, labels 140 and 160), or transmits an incoming call rejection to the call request terminal if it cannot be assured (bandwidth manager may reject the call [col. 11, lines 57-62]);

the call requested terminal transmits a receive acknowledgement to the call request terminal through the network resource management means if it is itself communication-enabled (for example, agent manager responds with the name and IP address of an available agent in response to an call setup event to an agent [col. 11, lines 20-27]);

the network resource management means, forwarding a receive acknowledgement from the call requested terminal to the corresponding call request terminal (handles call setup including negotiation between customer and agent [col. 7, lines 11-45] [col. 10, lines 40-44] [col. 4, lines 30-37]);

the call request terminal, upon receipt of the receive acknowledgement from the call requested terminal, recognizes that communication with guaranteed transmission capacity has been established and initiates transmission of data frames to the call requested terminal (once a call is setup, data flows between the participants [col. 4, lines 43-50]);

the call request terminal or the call requested terminal, upon completion of

communication, transmits a clear request to a peer terminal via the network resource

management means (receives a call clear request [col. 7, lines 20-27]); and,

upon receipt of the clear request (event is a call clear event [col. 14, lines 27-32]),

the network resource management means releases transmission capacity in case

transmission capacity corresponding to the clear request has been assured (bandwidth

associated with the cleared call are released by the bandwidth manager [col. 15, lines

1-14]).

but does not explicitly disclose

the call requested terminal transmits a call rejection if it is itself communication-

disabled;

the network resource management means, along with forwarding a call rejection

from the call requested terminal to the corresponding call request terminal, releases

transmission capacity assured for the call request associated with the call rejection

when the call rejection is received from the call requested terminal; and

switching hubs learning respective MAC (Media Access Control) addresses of

terminals in communication with each other and configuring a single path between

learned terminals.

However, Ely et al teaches of a call rejection based on the network resource

management means not having enough bandwidth for a call ([col. 13, lines 55-60])

and the network resource management means releases transmission capacity

assured for the call request associated with a "done" ([col. 14, lines 25-37]). It would

have been obvious for one of ordinary skill in the art at the time of the invention to use

the teachings of Ely et al to have the call requested terminal transmit a call rejection in

order to account for the call requested terminal not being able to support a call. The

modified Ely et al does not explicitly disclose switching hubs learning respective MAC

(Media Access Control) addresses of terminals in communication with each other and

configuring a single path between learned terminals.

However, Gonda teaches of one or more switching hubs (nodes along the path) that

learn respective MAC (Media Access Control) addresses of the terminals (source and

destination MAC addresses [0038][0040]) in communication with each other and

configure a single path between learned terminals (circuit/connection/flow using STP

[0038][0042]). It would have been obvious for one of ordinary skill in the art at the time

of the invention to include MAC address learning as taught by Gonda in the modified

method of Ely et al in order to manage flows in a well known network layer (Gonda

[0002][0011]).

Re claim 5, the modified Ely et al modified by Gonda teaches the transmission

capacity allocation method according to claim 1, and further discloses: while

communication is in progress, the call requested terminal transmits the data of at least

one frame to the call request terminal (once a call is setup, data flows between the

participants [col. 4, lines 43-50]), but does not explicitly disclose wherein: at intervals

within the aging time of the MAC address learning function of the switching hubs on the

network, and the switching hubs along the path between the call request terminal and

the call requested terminal continue learning the MAC address of the above-mentioned

call requested terminal using the data of at least one frame. However, Gonda teaches

at intervals within the aging time of the MAC address learning function of the switching

hubs on the network (aging is the process by which AT entries can be removed from the

table at regular timeouts so that the stale entries can be removed and the AT entry can

be reused [0040]), and the switching hubs (switch/node) along the path between the call

request terminal (SMA) and the call requested terminal (DMA) continue learning the

MAC address of the above-mentioned call requested terminal using the data of at least

one frame (for example, in a unidirectional circuit, only forward path entries are entered,

and in bidirectional circuits, both forward and reverse path entries are added [0070] with

respect to MAC addresses [0067]-[0069]). It would have been obvious for one of

ordinary skill in the art at the time of the invention to include aging and the switching

hubs leaning the MAC addresses of the call requested terminal as taught by Gonda in

the modified Ely et al in order to save space in a MAC address table and to properly

route a layer 2 stream from source to destination without flooding every packet (Gonda

[0041]).

Re claim 9, note that Ely et al discloses the transmission capacity allocation

method according wherein, when the call request terminal issues a request for multicast

communication (for example, a multi-point data service [col. 10, lines 7-15]),

transmission capacity is assured along the transmission links of each path used for the

requested multicast communication (bandwidth limits for any IP address or masked

portion thereof, including individual media handlers and networks or sub-portions

thereof [col. 8, lines 1-20]).

Re claim 11, Ely et al discloses the transmission capacity allocation method according, wherein, in order to transmit information regarding correspondents, transmission capacity, assurability of capacity, acceptance/rejection of incoming calls, and release of capacity, the network resource management means and the terminals use SIP (Session Initiation Protocol) ([col. 7, lines 15-25]).

Re claim 14, Ely et al discloses a communications network comprising a plurality of terminals (for example, customers and agents (Figure 1), and network resource management means (conference controller [col. 6, lines 42-60]) configuring a path traversing any one or more of the one or more switching hubs (for example, media handler routes media [col. 3, lines 32-40]) between the call request terminal and the call requested terminal amongst the plurality of terminals, wherein:

each one of the plurality of terminals comprises:

means for transmitting a call request (call is initiated by a customer [col. 4, lines 50-60]) containing information on the transmission capacity (device capability info, including video, audio, and data codec support [col. 5, lines 64-67]) whose allocation is requested in order to perform communication, along with its own terminal address and the address of the call requested terminal (information includes IP address information [col. 4, lines 53-60] & type of media service, media endpoints, and media sources [col. 7, lines 30-36]), when the terminal itself operates as a call request terminal (for example, customer 150 [col. 3, lines 10-19]);

means for transmitting a receive acknowledgement when it is itself communication-enabled to the call request terminal associated with a call request via the network

resource management means when a call request is received (for example, agent

manager responds with the name and IP address of an available agent in response to

an call setup event to an agent [col. 11, lines 20-27]) and the terminal itself operates as

a call requested terminal (for example, agent [col. 4, lines 10-20]);

means for recognizing that communication with guaranteed transmission capacity

has been established (transmission bandwidth required based on codec [col. 11, lines

55-67]) and initiating transmission of data frames to the call requested terminal upon

receipt of a receive acknowledgement from the call requested terminal when operating

as a call request terminal (once a call is setup, data flows between the participants [col.

4, lines 43-50]); and

means for transmitting a clear request to a peer terminal via the network resource

management means upon completion of communication (receives a call clear request

[col. 7, lines 20-27]); and

the network resource management means comprises:

means for storing the connection between the terminals and the switching hubs, as

well as between the switching hubs, and the transmission capacity of the transmission

links associated with this connection (bandwidth manager manages bandwidth for all

connections in all parts of the network [col. 8, lines 5-17]);

means for (for example, call manager and event handler (Figure 4)) consulting the

storage means in response to a call request from a call request terminal and making an

assessment as to whether the transmission capacity to be used can be assured along a

path traversing switching hubs between a call request terminal and a call requested

terminal ([col. 8, lines 10-25]);

means for increasing the transmission capacity to be used in the storage means by

an amount corresponding to said assurance (col. 11, lines 40-67]) and transmitting a

call request from said call request terminal to said call requested terminal if, in

accordance with the assessment results of the assessment means, it can be assured

(inherently the call request would reach the call requested terminal (See Figure 4, labels

140 and 160), or transmitting an incoming call rejection to said call request terminal if it

cannot be assured (bandwidth manager may reject the call [col. 11, lines 57-62]);

means for forwarding a receive acknowledgement from the call requested terminal to

the corresponding call request terminal (handles call setup including negotiation

between customer and agent [col. 7, lines 11-45] [col. 10, lines 40-44] [col. 4, lines 30-

37]); and

means for releasing transmission capacity and withdrawing it from the storage

means when a clear request is received from the other terminal (for example, agent

hangs up IP phone the call clear is received over the Q.931 interface [col. 11, lines 13-

18]) participating in communication in case transmission capacity corresponding to the

clear request has been assured (bandwidth associated with the cleared call are

released by the bandwidth manager [col. 15, lines 1-14]);

but does not explicitly disclose:

transmitting a call rejection when it is itself communication-disabled;

the network resource management means forwarding a call rejection from the call

requested terminal to the corresponding call request terminal,

means for releasing transmission capacity assured for the call request associated

with the call rejection and withdrawing it from the storage means when a call rejection is

received from the call requested terminal; and

one or more switching hubs that learn respective MAC (Media Access Control)

addresses of the terminals in communication with each other and configure a single

path between learned terminals.

However, Ely et al teaches of a call rejection based on the network resource

management means not having enough bandwidth for a call ([col. 13, lines 55-60])

and the network resource management means releases transmission capacity

assured for the call request associated with a "done" ([col. 14, lines 25-37]). It would

have been obvious for one of ordinary skill in the art at the time of the invention to use

the teachings of Ely et al to have the call requested terminal transmit a call rejection in

order to account for the call requested terminal not being able to support a call. The

modified Ely et al does not explicitly disclose switching hubs learning respective MAC

(Media Access Control) addresses of terminals in communication with each other and

configuring a single path between learned terminals.

However, Gonda teaches of one or more switching hubs (nodes along the path) that

learn respective MAC (Media Access Control) addresses of the terminals (source and

destination MAC addresses [0038][0040]) in communication with each other and

configure a single path between learned terminals (circuit/connection/flow using STP

[0038][0042]). It would have been obvious for one of ordinary skill in the art at the time

of the invention to include MAC address learning as taught by Gonda in the modified

method of Ely et al in order to manage flows in a well known network layer (Gonda

[0002][0011]).

Re claim 15, note that Ely et al discloses the communications network wherein

the network resource management means (for example, conference controller [col. 6,

lines 43-59]) is provided in any one of the one or more switching hubs (for example,

conference controller has a LAN module to connect to the packet based network [col. 6,

lines 43-59] and in Figure 1, forwards messages between a source and destination).

Re claim 26, Ely et al discloses a network resource management device

(conference controller [col. 6, lines 42-60]) for configuring a path traversing one or more

transmission links and one or more switching hubs (for example, media handler routes

media [col. 3, lines 32-40]) between terminals (for example, customers and agents

(Figure 1) on a network, wherein the terminals are terminals comprising means for

reserving transmission capacity to be used upon a call request, with the network

resource management device comprising:

means for storing connections between the terminals and the switching hubs, as well

as between the switching hubs, and the transmission capacity of the transmission links

associated with the connections (bandwidth manager manages bandwidth for all

connections in all parts of the network [col. 8, lines 5-17]);

means for (for example, call manager and event handler (Figure 4) consulting the

storage means in response to the call request from the call request terminal and making

an assessment as to whether the transmission capacity to be used can be assured

along the path traversing switching hubs between the call request terminal and the call

requested terminal ([col. 8, lines 10-25]);

means for increasing the transmission capacity to be used in the storage means by

an amount corresponding to said assurance (col. 11, lines 40-67]) and transmitting a

call request from said call request terminal to said call requested terminal if, in

accordance with the assessment results of the assessment means, it can be assured

(inherently the call request would reach the call requested terminal (See Figure 4, labels

140 and 160), or transmitting an incoming call rejection to said call request terminal if it

cannot be assured (bandwidth manager may reject the call [col. 11, lines 57-62]);

means for forwarding a receive acknowledgement from the call requested terminal to

the corresponding call request terminal (handles call setup including negotiation

between customer and agent [col. 7, lines 11-45] [col. 10, lines 40-44] [col. 4, lines 30-

37]); and

means for releasing transmission capacity and withdrawing it from the storage

means when a clear request is received from the other terminal (for example, agent

hangs up IP phone the call clear is received over the Q.931 interface [col. 11, lines 13-

18]) participating in communication in case transmission capacity corresponding to the

clear request has been assured (bandwidth associated with the cleared call are

released by the bandwidth manager [col. 15, lines 1-14]);

but does not explicitly disclose

means for forwarding a call rejection from the call requested terminal to the

corresponding call request terminal, and

means for releasing transmission capacity assured for the call request associated

with the call rejection and withdrawing it from the storage means when a call rejection is

received from the call requested terminal; and

the switching hubs are switching hubs with an MAC address learning function that

learn the respective MAC (Media Access Control) addresses of terminals in

communication with each other and configure a single path between the learned

terminals.

However, Ely et al teaches of a call rejection based on the network resource

management means not having enough bandwidth for a call ([col. 13, lines 55-60])

and the network resource management means releases transmission capacity

assured for the call request associated with a "done" ([col. 14, lines 25-37]). It would

have been obvious for one of ordinary skill in the art at the time of the invention to use

the teachings of Ely et al to have the call requested terminal transmit a call rejection in

order to account for the call requested terminal not being able to support a call. The

modified Ely et al does not explicitly disclose switching hubs learning respective MAC

(Media Access Control) addresses of terminals in communication with each other and

configuring a single path between learned terminals.

However, Gonda teaches of one or more switching hubs (nodes along the path) that

learn respective MAC (Media Access Control) addresses of the terminals (source and

destination MAC addresses [0038][0040]) in communication with each other and

configure a single path between learned terminals (circuit/connection/flow using STP

[0038][0042]). It would have been obvious for one of ordinary skill in the art at the time

of the invention to include MAC address learning as taught by Gonda in the modified

method of Ely et al in order to manage flows in a well known network layer (Gonda

[0002][0011]).

11.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the

modified Ely et al in view of Gonda as applied to claim 1 above, and further in view of

Bradd (2003/0123388).

        Re claim 2, the modified Ely et al modified by Gonda teaches the transmission

capacity allocation method according to claim 1, but does not explicitly disclose

wherein: during communication with the call requested terminal, if necessary, the call

request terminal requests changes in the transmission capacity of the communication

path, and, in response to this request, the network resource management means

changes the transmission capacity of the communication path to the extent that the

maximum assurable capacity is not exceeded. However, Bradd teaches of during

communication with the call requested terminal, if necessary, the call request terminal

(post-answer between media endpoints [0033]) requests changes in the transmission

capacity of the communication path (using SDP changes to change the codec to be

used that requires more bandwidth [0033]) , and, in response to this request, the

network resource management means (call server) changes the transmission capacity

of the communication path to the extent that the maximum assurable capacity is not

exceeded (if there is not enough bandwidth on a link then the call server arranges for

the call to remain at the un-modified bandwidth [0033]). It would have been obvious for

one of ordinary skill in the art at the time of the invention to include a change of

transmission capacity request as taught by Bradd in the modified method of Ely et al in

order to maximize the quality of a call taking place between media endpoints.

12.   Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over

the modified Ely et al in view of Gonda as applied to claim 1 above, and further in view

of Abaye (7,260,060).

        Re claim 3, the modified Ely et al modified by Gonda teaches the transmission

capacity allocation method according to claim 1, but does not explicitly disclose

wherein: along with the receive acknowledgement, the call requested terminal requests

allocation of transmission capacity in the direction of the call request terminal from the

call requested terminal, and in response to this request, the network resource

management means makes an assessment as to whether the transmission capacity

can be assured and notifies said call requested terminal of the results. However, Abaye

et al teaches along with the receive acknowledgement (for example,

REPLY_RESOURCE_AVAILABILITY [col. 12, lines 5-15]), the call requested terminal

requests allocation of transmission capacity in the direction of the call request terminal

from the call requested terminal (codecs, packet sizes, and resource elements

supported by the destination terminal [col. 12, lines 9-15]), and in response to this

request, the network resource management means makes an assessment as to

whether the transmission capacity can be assured (connection manager updates
elements in candidate list for connection [col. 12, lines 12-20]) and notifies said call
requested terminal of the results (for example, if the call cannot be allowed, the
connection manager sends a message to terminate the call setup [col. 12, lines 18-25]).
It would have been obvious for one of ordinary skill in the art at the time of the invention
to include a transmission capacity request for the call requested terminal as taught by
Abaye et al in the modified method of Ely et al in order to support the transmission
capacity of all devices in a connection.

Re claim 4, the modified Ely et al modified by Gonda teaches the transmission
capacity allocation method according to claim 1, and further discloses wherein: the call
request terminal is a terminal carrying out stream data delivery service ([col. 4, lines 40-
50]), but does not explicitly disclose the call requested terminal, prior to receiving the
stream data delivery service, issues a notification of completion of preparations for
receiving the delivery service using a broadcast frame or a frame destined for the call
request terminal; and in response to the notification, the switching hubs along the path
between the call request terminal and the call requested terminal finish learning the
MAC address of the call requested terminal.

However, Abaye teaches of the call requested terminal, prior to receiving the stream
data delivery service, issues a notification of completion of preparations for receiving the
delivery service using a frame destined for the call request terminal (for example, in
Figure 5, the RESV message confirms the flow and the network path [col. 13, lines 47-
60]). It would have been obvious for one of ordinary skill in the art at the time of the

invention to include a notification to the call request terminal as taught by Abaye in order

to set up a connection between two end parties. Abaye does not explicitly disclose, in

response to the notification, the switching hubs along the path between the call request

terminal and the call requested terminal finish learning the MAC address of the call

requested terminal.

However, Gonda teaches of the switching hubs along the path between the call

request terminal and the call requested terminal finish learning the MAC address of the

call requested terminal (for example, traveling the reverse direction to get to destination

station S [0067] in a unidirectional circuit [0050][0070]). It would have been obvious for

one of ordinary skill in the art at the time of the invention to include MAC address

learning as taught by Gonda in the modified method of Ely et al in order to manage

flows in a well known network layer (Gonda [0002][0011]).

13.   Claims 6 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over

the modified Ely et al in view of Gonda as applied to claims 1 and 26 above, and further

in view of Lee and Zabihi et al (2004/0042454).

Re claim 6, the modified Ely et al modified by Gonda teaches the transmission

capacity allocation method according to claim 1, and as pointed out in the rejection of

Claim 1 above teaches wherein: a receive acknowledgement is forwarded from the call

requested terminal to the call request terminal; transmitting a frame to the call requested

terminal, the switching hubs learn the source MAC address when carrying out MAC

address learning for the frame; the call request terminal transmits one or more frames

within the time-out period; receipt of a frame from the call request terminal, and, a frame

is transmitted to the call request terminal; when the call request terminal or the call

requested terminal cuts off communication with a peer terminal, it transmits a clear

request to the network resource management means (See Rejection for Claim 1).

but does not explicitly disclose:

setting a time-out period in the input ports that received the received frame and the

output ports selected during forwarding; and

the network resource management means manages the usage status of VLAN

(Virtual Local Area Network) identifiers represented by TCI (Tag Control Information),

attaching a VLAN tag containing TCI corresponding to an unused VLAN identifier to the

receive acknowledgement, stores the VLAN identifier as being in use; reading the VLAN

identifier from the VLAN tag attached; attaches a VLAN tag thereto that corresponds to

the VLAN identifier that has been read; the switching hubs learn the VLAN identifier and

set the VLAN identifier with a time-out period in the input ports that received the

received frame and the output ports selected during forwarding; and stops attaching

VLAN tags to frames upon transmission of the clear request; and, upon receipt of the

clear request with a VLAN tag attached thereto, the network resource management

means stores the VLAN identifier as being unused.

However, Zabihi et al teaches of the network resource management means

manages the usage status of VLAN (Virtual Local Area Network) identifiers, attaching a

VLAN tag containing TCI corresponding to an unused VLAN identifier (chooses a

unused VLAN identifiers [0061]) to the receive acknowledgement (for example, in a

connection across a backbone network [0051]-[0052]), stores the VLAN identifier as

being in use (subsequently blocked for reuse and is stored in a roster of in-use VLAN

identifiers centrally [0061]); reading the VLAN identifier from the VLAN tag attached

(VLAN identifier is used to route packets [0021]); attaches a VLAN tag thereto that

corresponds to the VLAN identifier that has been read (adds a VLAN identifier to the

packet header [0021]) ; the switching hubs learn the VLAN identifier (for example, VLAN

data traffic is switched to ports based on VLAN identifiers [0052] and provisioned on the

links [0055]); and stops attaching VLAN tags to frames upon transmission of the clear

request (for example, when the VLAN identifier is no longer needed [0021]); and, upon

receipt of the clear request with a VLAN tag attached thereto, the network resource

management means stores the VLAN identifier as being unused (for example,

surrenders or is an unused VLAN identifier [0061]). It would have been obvious for one

of ordinary skill in the art at the time of the invention to use VLAN identifiers as taught

by Zabihi et al in the modified device of Ely et al in order to extend a LAN beyond a

physical area (Zabihi et al [0007]). Zabihi et al does not explicitly disclose setting a

time-out period in the input ports that received the received frame and the output ports

selected during forwarding and a VLAN tag containing TCI.

However, Lee teaches of a VLAN tag containing TCI (See Figure 1 and 3-bit 802.1p

identifier field is used to determine the priority level [0014]). It would have been obvious

for one of ordinary skill in the art at the time of the invention to include TCI information

indicating the priority as taught by Lee et al in the modified device of Ely et al in order to

guarantee a high level of QoS for multimedia streams (Lee et al [0006]-[0007]). Lee

does not explicitly disclose setting a time-out period in the input ports that received the received frame and the output ports selected during forwarding.

However, Gonda teaches setting a time-out period in the input ports that received the received frame and the output ports selected during forwarding (aging is the process by which AT entries can be removed from the table at regular timeouts so that the stale entries can be removed and the AT entry can be reused [0040]). It would have been obvious for one of ordinary skill in the art at the time of the invention to include a time-out period as taught by Gonda in the modified Ely et al in order to save space in a MAC address table.

Re claim 27, the modified Ely et al in view of Gonda teaches the network resource management device according to claim 26, but does not explicitly disclose means for managing the usage status of VLAN identifiers represented by TCI, wherein: the managing means includes: means for attaching a VLAN tag containing TCI corresponding to an unused VLAN identifier to a receive acknowledgement when a receive acknowledgement is forwarded from the call requested terminal to the call request terminal; means for storing the VLAN identifier corresponding to the attached VLAN tag as being in use; and means which, upon receipt of a clear request with the VLAN tag attached thereto, stores the VLAN identifier as being unused.

However, Zabihi et al teaches of means for managing the usage status of VLAN identifiers, wherein: the managing means includes: means for attaching a VLAN tag corresponding to an unused VLAN identifier (chooses a unused VLAN identifiers [0061]) to a receive acknowledgement when a receive acknowledgement is forwarded from the

call requested terminal to the call request terminal (for example, in a connection across a backbone network [0051]-[0052]) ;

means for storing the VLAN identifier corresponding to the attached VLAN tag as being in use (subsequently blocked for reuse and is stored in a roster of in-use VLAN identifiers centrally [0061]); and means which, upon receipt of a clear request with the VLAN tag attached thereto (for example, when the VLAN identifier is no longer needed [0021]), stores the VLAN identifier as being unused (for example, surrenders or is an unused VLAN identifier [0061]). It would have been obvious for one of ordinary skill in the art at the time of the invention to use VLAN identifiers as taught by Zabihi et al in the modified device of Ely et al in order to extend a LAN beyond a physical area (Zabihi et al [0007]). Zabihi et al does not explicitly disclose a VLAN tag containing TCI.

However, Lee teaches of a VLAN tag containing TCI (See Figure 1 and 3-bit 802.1p identifier field is used to determine the priority level [0014]). It would have been obvious for one of ordinary skill in the art at the time of the invention to include TCI information indicating the priority as taught by Lee et al in the modified device of Ely et al in order to guarantee a high level of QoS for multimedia streams (Lee et al [0006]-[0007]).

14.   Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Ely et al in view of Gonda as applied to claim 1 above, and further in view of Li et al (2004/0165528) & Higashiyama (2002/0196975).

Re claim 7, the modified Ely et al modified by Gonda teaches the transmission capacity allocation method according to claim 1, but does not explicitly disclose wherein

transmission capacity is allocated in advance even to currently unused communication

paths that may be switched to in the future based on the spanning tree protocol, in

accordance with which networks are rebuilt so as not to form loops logically even if the

physical network does form a loop. However, Li et al teaches of transmission capacity

allocated in advance even to currently unused communication paths that may be

switched to in the future (advance reservation for AF or EF VPNs [0047]-[0048]). It

would have been obvious for one of ordinary skill in the art at the time of the invention to

include advance allocation of transmission capacity as taught by Li et al in the modified

method of Ely et al in order to guarantee the transmission capacity of a higher priority

stream (Li et al [0047]). The modified Ely et al modified by Gonda & Li et al does not

explicitly disclose the paths based on the spanning tree protocol, in accordance with

which networks are rebuilt so as not to form loops logically even if the physical network

does form a loop. However, Higashiyama teaches in a call environment setting ([0160])

of using the spanning tree protocol ([0148]), in accordance with which networks are

rebuilt so as not to form loops logically even if the physical network does form a loop

(relay devices are connected to each other and the network includes a redundant

channel [0146]-[0147]). It would have been obvious for one of ordinary skill in the art at

the time of the invention to include a spanning tree protocol as taught by Higashiyama

in the modified method of Ely et al in order to avoid a redundant route (Higashiyama

[0006]).

Re claim 8, the modified Ely et al modified by Gonda, Li et al & Higashiyama

teaches the transmission capacity allocation method according to claim 7, but does not

explicitly disclose wherein, when the currently used communication path overlaps with a

currently unused communication path that may be switched to in the future, allocation of

transmission capacity to said currently unused communication path is prohibited.

However, Gonda teaches wherein there is only one active path between from a root

node to each of the other nodes, and that all other links between the nodes are disabled

and cannot be used ([0042], and therefore, there cannot be paths that overlap. It would

have been obvious for one of ordinary skill in the art at the time of the invention to

include non-overlapping paths as taught by Gonda in the modified method of Ely et al in

order to avoid loops in a network.

15.   Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable

over the modified Ely et al in view of Gonda as applied to claim 1 above, and further in

view of Kitada (2003/0037163).

       Re claim 10, the modified Ely et al modified by Gonda teaches the transmission

capacity allocation method according to claim 1, but does not explicitly disclose wherein

the network resource management means uses IGMP (Internet Group Management

Protocol), GMRP (GARP Multicast Registration Protocol), or GVRP (GARP VLAN

Registration Protocol) to perform address management during multicast delivery of

stream data. However, Kitada et al teaches of a network resource management means

(for example, in a subscriber edge switch [0217]-[0218]) using GVRP ([0228]) to

perform address management during multicast delivery of stream data (ports can

accept a frame having a multicast address [0228] and broadcasting to users [0229]-

[0230]). It would have been obvious for one of ordinary skill in the art at the time of the

invention to use a protocol taught by Kitada et al in the modified method of Ely et al

since it is well known in the art that applying a well known standard, or protocol, to a

system provides the system with significantly improved industrial applicability.

Re claim 12, the modified Ely et al modified by Gonda teaches the transmission

capacity allocation method according to claim 1, but does not explicitly disclose wherein

connection of the switching hubs and detection of the transmission capacity,

configuration of the switching hubs via access by the network resource management

means, as well as notification of the network resource management means by the

switching hubs, are performed by the network resource management means and the

switching hubs based on SNMP (Simple Network Management Protocol), RMON

(Remote Network Monitoring), or RMON2 (Remote Network Monitoring MIB Version2).

However, Kitada et al teaches of connection of the switching hubs (when a new service

provider is added to the system [0370]) and detection of the transmission capacity (for

example, access permission for transmission [0381], configuration of the switching hubs

via access by the network resource management means (for example, registering a

service provider in a proxy Radius server [0370]), as well as notification of the network

resource management means by the switching hubs (for example, sending

management frames to a session management server [0385]-[0386]), are performed by

the network resource management means and the switching hubs based on SNMP

([0370][0385]). It would have been obvious for one of ordinary skill in the art at the time

of the invention to communicate between switching hubs and a management means

using a management protocol as taught by Kitada et al in the modified method of Ely et

al in order to control the setup and structure of a network using well known protocols.

16.   Claims 13,17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

the modified Ely et al in view of Gonda as applied to claims 1 and 14 above, and further

in view of Li et al.

Re claim 13, the modified Ely et al modified by Gonda teaches the transmission

capacity allocation method according to claim 1, but does not explicitly disclose

wherein: the co-existence of frames with guaranteed maximum transmission capacity

and non-guaranteed Best Effort type frames is permitted, with the call request terminal

transmitting frames with guaranteed maximum transmission capacity by appending

priority markings thereto, such that the call request terminal, the network resource

management means, and the call requested terminal can process transmission capacity

allocation only for frames, to which the priority markings are appended. However, Li et

al teaches of the co-existence of frames with guaranteed maximum transmission

capacity (for example, EF class signifies premium service and AF4 signifies highest

priority [0024]) and non-guaranteed Best Effort type frames (for example, best effort

class [0024]) is permitted, with the call request terminal transmitting frames with

guaranteed maximum transmission capacity by appending priority markings thereto (for

example, marked by bits separating classes [0038]), such that the call request terminal,

the network resource management means, and the call requested terminal can process

transmission capacity allocation only for frames, to which the priority markings are

appended (best-effort traffic class, no admission control is necessary [0059][0067]). It would have been obvious for one of ordinary skill in the art at the time of the invention to include priority classes as taught by Li et al in order to guarantee quality of service to the time-sensitive traffic.

Re claim 17, the modified Ely et al modified by Gonda teaches the communications network according to claim 14, but does not explicitly disclose: the plurality of terminals are terminals compliant with frames having guaranteed maximum transmission capacity and, on the network, Best-Effort type terminals compliant only with frames having no guaranteed maximum transmission capacity may co-exist therewith and the terminals compliant with frames having guaranteed maximum transmission capacity can have means for appending priority markings to frames with guaranteed transmission capacity.

However, Li et al teaches of a plurality of terminals are terminals compliant with frames having guaranteed maximum transmission capacity (for example, EF class signifies premium service and AF4 signifies highest priority [0024]) and,

on the network, Best-Effort type terminals compliant only with frames having no guaranteed maximum transmission capacity may co-exist therewith (for example, best effort class [0024]) and

the terminals compliant with frames having guaranteed maximum transmission capacity can have means for ([0023]-[0024]) appending priority markings (for example, marked by bits separating classes [0038]) to frames with guaranteed transmission capacity. It would have been obvious for one of ordinary skill in the art at the time of

the invention to include priority classes as taught by Li et al in order to guarantee quality of service to the time-sensitive traffic.

Re claim 18,   the modified Ely et al modified by Gonda & Li et al teaches the communications network according to claim 17, but does not explicitly disclose wherein: each of the switching hubs comprises means for sending input frames, if the input frames have priority markings, to transmission links in preference to input frames without priority markings. However, Li et al teaches of each of the switching hubs comprises means for sending input frames (for example, a per-hop forward behavior [0004]), if the input frames have priority markings, to transmission links in preference to input frames without priority markings (inherently priority markings are used to forward traffic over non-priority traffic [0004]). It would have been obvious for one of ordinary skill in the art at the time of the invention to include transmitting frames with priority markings over those without markings as taught by Li et al in order to guarantee quality of service to differentiated traffic.

Re claim 19, the modified Ely et al modified by Gonda & Li et al teaches the communications network according to claim 18, but does not explicitly disclose wherein: each of the switching hubs comprises means which, whenever input frames have priority markings and the destination MAC addresses have been learned, sends said input frames to transmission links in preference to input frames without priority markings.

However, Gonda teaches of learning destination MAC addresses ([0038]). It would have been obvious for one of ordinary skill in the art at the time of the invention to learn

destination MAC addresses as taught by Gonda in the modified network of Ely et al in

order to establish a circuit/connection/flow between a source and destination (Gonda

[0038]). Ely et al modified by Gonda does not explicitly teach wherein whenever input

frames have priority markings, sending said input frames to transmission links in

preference to input frames without priority markings.

However, Li et al teaches of each of the switching hubs comprises means for

sending input frames (for example, a per-hop forward behavior [0004]) , if the input

frames have priority markings, to transmission links in preference to input frames

without priority markings (inherently priority markings are used to forward traffic over

non-priority traffic [0004]). It would have been obvious for one of ordinary skill in the art

at the time of the invention to include transmitting frames with priority markings over

those without markings as taught by Li et al in order to guarantee quality of service to

differentiated traffic.

Re claim 20, the modified Ely et al modified by Gonda & Li et al teaches the

communications network according to claim 18, but does not explicitly disclose wherein

each of the switching hubs comprises means for processing the MAC address learning

of priority-marked frames in preference to frames without priority markings. However,

Gonda teaches wherein each of the switching hubs comprises means for processing the

MAC address learning of frames ([0038]) and uses DiffServ ([0035]) and QoS [0037]). It

would have been obvious for one of ordinary skill in the art at the time of the invention to

process priority marked frames in preference to frames without priority markings using

the teachings of Gonda in the modified network of Ely et al in order to forward frames

with priority markings before those of non-priority frames.

17.   Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over the

modified Ely et al in view of Gonda as applied to claim 14 above, and further in view of

Basso et al (6,690,678).

        Re claim 16, the modified Ely et al modified by Gonda teaches the

communications network according to claim 14, but does not explicitly disclose wherein

one or more switching hubs are connected to the tree structure, with the network

resource management means located in the vicinity of the root (root) of the tree

structure. However, Basso et al teaches of one or more switching hubs (for example,

backbone node) are connected to the tree structure ([col. 15, lines 1-25]), with the

network resource management means (for example, backbone bandwidth management

server [col. 15, lines 55-67]) located in the vicinity of the root (root) of the tree structure

([col. 16, lines 1-5]).   It would have been obvious for one of ordinary skill in the art at

the time of the invention to include a network resource management means in the root

of the tree structure as taught by Basso et al in the modified Ely et al in order to send

information that has to go to every node very quickly and efficiently (Basso et al [col. 15,

lines 10-15]).

18.   Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable

over the modified Ely et al in view of Gonda & Li et al as applied to claim 17 above, and

further in view of Lee (2003/0126286).

Re claim 21, the modified Ely et al modified by Gonda & Li et al teaches the

communications network according to claim 17, but does not explicitly disclose wherein

the three bits of TCI that represent priority are used for priority indication. However, Lee

et al teaches of wherein the three bits of TCI that represent priority are used for priority

indication (3-bit 802.1p identifier field is used to determine the priority level [0014]). It

would have been obvious for one of ordinary skill in the art at the time of the invention to

include TCI information indicating the priority as taught by Lee et al in the modified

network of Ely et al in order to guarantee a high level of QoS for multimedia streams

(Lee et al [0006]-[0007]).

Re claim 22, the modified Ely et al modified by Gonda, Li et al & Lee et al

teaches the communications network according to claim 21, wherein means for

attaching or removing TCI from non-TCI-compliant frames is provided in switching hubs

at the edge of the network. However, Lee et al teaches of means for attaching or

removing TCI ([0063]) from non-TCI-compliant frames (for example, Diffserv packets

[0057]-[0059]) is provided in switching hubs at the edge of the network

([0056][0062][0065]). It would have been obvious for one of ordinary skill in the art at the

time of the invention to include TCI information in non-TCI-compliant frames as taught

by Lee et al in the modified network of Ely et al in order to multiple levels of QoS (Lee et

al [0002][0064]-[0065]).

19.   Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over

the modified Ely et al in view of Gonda & Li et al as applied to claim 18 above, and

further in view of Feuerstraeter (2003/0123393).

Re claim 23, the modified Ely et al modified by Gonda & Li et al teaches the

communications network according to claim 18, but does not explicitly disclose wherein

each one of the switching hubs comprises means for sending a PAUSE frame that halts

transmission to the corresponding input transmission links when the buffer size of

frames not subject to priority processing becomes equal to or more than a

predetermined value Th_{max} and sending a PAUSE frame that disables the suspension of

transmission to the corresponding transmission links when a predetermined value Th_{min}

($Th_{max}>Th_{min}$) is reached.

However, Feuerstraeter et al teaches of one of the switching hubs comprises means

for ([0044]) sending a PAUSE frame (control message that pauses transmission) that

halts transmission to the corresponding input transmission links when the buffer size of

frames not subject to priority processing (indicated by a priority level in the control

message [0033], where for example, a lowest priority [0041] and Figure 4) becomes

equal to or more than a predetermined value Th_{max} (for example, low priority levels

allocated a lower buffer threshold [0032]-[0033]) and sending a PAUSE frame that

disables the suspension of transmission to the corresponding transmission links when a

predetermined value Th_{min} (for example, an arbitrary value below the threshold 308

[0044]) ($Th_{max}>Th_{min}$) is reached (pauses until a subsequent control message is

received modifying/eliminating the hold for the particular priority level [0031]). It would

have been obvious for one of ordinary skill in the art at the time of the invention to

include a PAUSE frame to halt transmission of low priority frames as taught by

Feuerstraeter et al in the modified network of Ely et al in order to prioritize higher priority

traffic over lower priority traffic (Feuerstraeter et al [0032]).

Re claim 24, the modified Ely et al modified by Gonda & Li et al teaches the

communications network according to claim 18, but does not explicitly disclose wherein

each one of the switching hubs comprises means for configuring the threshold value of

the input frame rate of ports connected to the terminals manually or via access by the

network resource management means, as well as means for handling frames with

priority markings and frame rates exceeding the threshold value as non-priority frames.

However, Feuerstraeter et al teaches of each one of the switching hubs (flow control

agent in each network interface [0026][0036]) comprises means for (for example, a

machine-readable medium [0051]) configuring the threshold value of the input frame

rate of ports connected to the terminals manually ([0050] and block 702 identifies the

receive capacity of a network interface [0041]) or via access by the network resource

management means, as well as means for handling frames with priority markings and

frame rates exceeding the threshold value as non-priority frames (for example, when

the frame-rate exceeds the threshold, frames with priority marking at or below a

specified level are stopped, thus negating any priority [0023][0033]). It would have been

obvious for one of ordinary skill in the art at the time of the invention to include a

threshold value of the input frame rate of ports as taught by Feuerstraeter et al in the

modified network of Ely et al in order to prioritize higher priority traffic over lower priority

traffic (Feuerstraeter et al [0032]).

Re claim 25, the modified Ely et al modified by Gonda & Li et al teaches the

communications network according to claim 18, but does not explicitly disclose wherein,

amongst the switching hubs, hubs at the edge of the network comprise means which,

upon receipt of a notification of source MAC addresses and destination MAC addresses

for which the maximum transmission capacity is guaranteed from the network resource

management means, activates the priority processing markings of frames with these

MAC addresses, and, upon receipt of a notification of MAC addresses without

guaranteed maximum transmission capacity from the network resource management

means, removes the priority processing markings of the frames with these MAC

addresses.

However, Feuerstraeter et al teaches at hubs at the edge of the network comprise

means which (flow control agent in each network interface [0026][0036]), upon receipt

of a notification of source MAC addresses and destination MAC addresses

([0018][0028]) for which the maximum transmission capacity is guaranteed from the

network resource management means, activates the priority processing markings of

frames with these MAC addresses (generates a control message designating a priority

level above which content can be received [0031]), and, upon receipt of a notification of

MAC addresses without guaranteed maximum transmission capacity from the network

resource management means, removes the priority processing markings of the frames

with these MAC addresses (for example, when the frame-rate exceeds the threshold,

frames with priority marking at or below a specified level are stopped, thus negating any priority [0023][0033]). It would have been obvious for one of ordinary skill in the art at the time of the invention to include a notification of guaranteed flows versus non-guaranteed flows as taught by Feuerstraeter et al in the modified network of Ely et al in order to prioritize higher priority traffic over lower priority traffic (Feuerstraeter et al [0032]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL FIALKOWSKI whose telephone number is (571)270-5425. The examiner can normally be reached on Monday - Friday 10:30am-7pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Ryman can be reached on (571)272-3152. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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